Claims

1. Method for producing coil springs or stabilizers of steel, wherein the starting material is heated to a temperature above the recrystallization temperature, austenitized, held for equalization of temperature, then deformed and finally quenched to martensite and tempered, characterized by starting out with round steel rods, the heating temperature of which is equalized over the rod length and which then are transformed by skew rolling, while remaining approximately straight, so that a predetermined twisting of the material in the marginal area and a desired transformation gradient is achieved over the cross section, and, after the (critical) degree of transformation is exceeded, dynamic recrystallization processes take place, whereupon the rods are reheated to a temperature above Ac3, wound into a coil spring or bent into a stabilizer in order finally to be hardened and tempered.

2. Method of claim 1, characterized in that the direction of the twisting of the structure in the marginal region of the round rod corresponds to the main direction of tension of the coil spring or the stabilizer stressed by torsion.

3. Method of claim 1, characterized in that the direction of twist of the structure in the marginal region, with respect to the axis of the round rod, amounts to 35° - 65°.

4. Method of one or more of claims 1 to 3, characterized in that the skew rolling is carried out in one step.

5. Method of one or more of the claims 1 to 4, characterized in that the skew rolling of the rod is performed with an average degree of degree of stretching λ of at least 1.3.

6. Method of one of the claims 1 to 5, characterized in that the

maximum transformation in the marginal area amounts to between 0.65 and 1.0 times the diameter of the rod and is at least 0.3.

7. Method of one or more of the claims 1 to 6, characterized in that the material is heated at a rate between 100° - 400°K/s.

8. Method of one or more of the claims 1 to 7, characterized in that the starting material is heated to a temperature between 700° and 1100°C.

9. Method of one or more of the claims 1 to 8, characterized in that the heating is performed inductively.

10. Method of one or more of the claims 1 to 9, characterized in that the equalization of the heating temperature of the rod takes place for at least 10 seconds.

11. Method of one or more of the claims 1 to 5, characterized in that the temperature difference over the length of the rod does not exceed 5°K.

12. Method of one or more of the claims 1 to 11, characterized in that the heating temperature of the rod is kept constant virtually up to its entry between the rolls.

13. Method of one or more of the claims 1 to 12, characterized in that, during the skew rolling, a maximum local temperature increase of 50°K is not exceeded.

14. Method of one or more of the claims 1 to 14, characterized in that the skew rolling is performed in a temperature range of 700° - 1000°C.

15. Method of one or more of the claims 1 to 14, characterized in that the rolls of the skew rolling stand are adjusted in the axial and/or radial direction during the transformation operation and the round rods are produced with a diameter, which varies over their length.

16. Method of one or more of the claims 1 to 15, characterized in that, during a reheating above Ac3 following the skew rolling, the temperature difference over the rod length is limited to a maximum of 5°K.

17. Method of one or more of the claims 1 to 16, characterized in that it starts out from spring steel.

18. Method of one or more of the claims 1 to 16, characterized in that it starts out from a silicon-chromium steel.

19. Method of one or more of the claims 1 to 16, characterized in that it starts out from a microalloyed steel.

20. Coil spring, produced by a method of one or more of the claims 1 to 19, characterized in that, under load, it has almost the same stress distribution over the cross-section.

21. Stabilizer, produced by a method of one or more of the claims 1 to 19, characterized in that, under load, the part, stressed in torsion, it has almost the same stress distribution over the cross-section.